



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

11.7

| APPLICATION NO.             | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------------------|-------------|----------------------|---------------------|------------------|
| 10/562,071                  | 12/22/2005  | Yoshitaka Sugawara   | 102253.57240US      | 9504             |
| 23911                       | 7590        | 01/15/2008           | EXAMINER            |                  |
| CROWELL & MORING LLP        |             |                      | HO, ANTHONY         |                  |
| INTELLECTUAL PROPERTY GROUP |             |                      |                     |                  |
| P.O. BOX 14300              |             |                      | ART UNIT            |                  |
| WASHINGTON, DC 20044-4300   |             |                      | 2815                |                  |
|                             |             |                      | MAIL DATE           |                  |
|                             |             |                      | 01/15/2008          |                  |
|                             |             |                      | DELIVERY MODE       |                  |
|                             |             |                      | PAPER               |                  |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                 |                     |  |
|------------------------------|-----------------|---------------------|--|
| <b>Office Action Summary</b> | Application No. | Applicant(s)        |  |
|                              | 10/562,071      | SUGAWARA, YOSHITAKA |  |
|                              | Examiner        | Art Unit            |  |
|                              | Anthony Ho      | 2815                |  |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 October 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4,9 and 11-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4,9 and 11-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                        |                                                                   |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/22/2005, 10/22/2007</u> .                                  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

This is in response to amendment to application no. 10/562,071 filed on October 23, 2007. Claims 1-4, 9 and 11-13 are presented for examination. Claims 5-8, 10 and 14-15 have been cancelled.

### ***Election/Restrictions***

Applicant's election without traverse of claims 1-4, 9 and 11-13 in the reply filed on October 23, 2007 is acknowledged.

### ***Priority***

Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on July 30, 2003. It is noted, however, that applicant has not filed a certified copy of the 2003-283057 application as required by 35 U.S.C. 119(b).

### ***Information Disclosure Statement***

The information disclosure statement (IDS) submitted on December 22, 2005 was filed after the mailing date of the instant application on December 22, 2005. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

The information disclosure statement (IDS) submitted on October 22, 2007 was filed after the mailing date of the instant application on December 22, 2005. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-4, 9 and 11-13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Applicants have claimed "a synthetic high-molecular compound" as their invention, however the original specification fails to explain how this "synthetic high-molecular compound" is obtained. The specification only discloses the materials being used for the "first organosilicon polymer" and the "second organosilicon polymer," but there is no mention of any process (the environment, temperature, and duration) used in order to obtain claimed compound. Therefore, one of ordinary skill in the art would not be able to make or use the claimed invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-4, 9 and 11-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 9 and 11, as best understood, are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Beckley et al (US Patent 5,612,399).

In re claims 1-2, Beckley et al discloses a synthetic high-molecular compound having a three-dimensional steric structure which is formed by linking at least one first organosilicon polymers having a crosslinked structure using siloxane with at least one second organosilicon polymers having a linear linked structure using siloxane through siloxane bonds (column 3 – column 5; column 8).

The recitation “semiconductor device” in the claim preamble specifies an intended use or field of use and is treated as nonlimiting since it has been held that in device claims, intended use must result in a structural difference between the claim invention and the prior art in order to patentably distinguish the claim invention from the prior art. If the

prior art structure is capable of performing the intended use, then it meets the claim. *In re Casey*, 152 USPQ 235 (CCPA 1967); *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

A claim containing a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

The recitation "with which a semiconductor element and at least part of electrical connecting means used for electrically connecting the semiconductor device to external devices are covered" in the claim is functional language and is treated as nonlimiting since it has been held that in device claims, the device must be distinguished from the prior art in terms of structure rather than function. *In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997) The absence of a disclosure in a prior art reference relating to function did not defeat the Board's finding of anticipation of claimed apparatus because the limitations at issue were found to be inherent in the prior art reference. See MPEP 2114.

In re claims 9 and 11, Beckley et al discloses the first organosilicon polymer is one of the listed groups and the second organosilicon polymer is one of the listed groups, therefore the molecular weight of the first organosilicon polymer is lower than the molecular weight of the second organosilicon polymer (inherently) (column 3 – column 5; column 8).



Claims 1-2, 9 and 11, as best understood, are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kuck et al (US PUB 2002/0122946).

In re claims 1-2, Kuck et al discloses a synthetic high-molecular compound having a three-dimensional steric structure which is formed by linking at least one first organosilicon polymers having a crosslinked structure using siloxane with at least one second organosilicon polymers having a linear linked structure using siloxane through siloxane bonds (Figures 1-10; paragraph 0024 – paragraph 0058).

The recitation "semiconductor device" in the claim preamble specifies an intended use or field of use and is treated as nonlimiting since it has been held that in device claims, intended use must result in a structural difference between the claim invention and the prior art in order to patentably distinguish the claim invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. *In re Casey*, 152 USPQ 235 (CCPA 1967); *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). A claim containing a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

The recitation "with which a semiconductor element and at least part of electrical connecting means used for electrically connecting the semiconductor device to external devices are covered" in the claim is functional language and is treated as nonlimiting since it has been held that in device claims, the device must be distinguished from the

prior art in terms of structure rather than function. *In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997) The absence of a disclosure in a prior art reference relating to function did not defeat the Board's finding of anticipation of claimed apparatus because the limitations at issue were found to be inherent in the prior art reference. See MPEP 2114.

In re claims 9 and 11, Kuck et al discloses the first organosilicon polymer is one of the listed groups and the second organosilicon polymer is one of the listed groups, therefore the molecular weight of the first organosilicon polymer is lower than the molecular weight of the second organosilicon polymer (inherently) (Figures 1-10; paragraph 0024 – paragraph 0058).

Claims 1-2, 9 and 11, as best understood, are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Takeda et al (JP 57-131250).

In re claims 1-2, Takeda et al discloses a synthetic high-molecular compound having a three-dimensional steric structure which is formed by linking at least one first organosilicon polymers having a crosslinked structure using siloxane with at least one second organosilicon polymers having a linear linked structure using siloxane through siloxane bonds (Abstract; entire document).

The recitation "semiconductor device" in the claim preamble specifies an intended use or field of use and is treated as nonlimiting since it has been held that in device claims, intended use must result in a structural difference between the claim invention and the



prior art in order to patentably distinguish the claim invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. *In re Casey*, 152 USPQ 235 (CCPA 1967); *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

A claim containing a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

The recitation "with which a semiconductor element and at least part of electrical connecting means used for electrically connecting the semiconductor device to external devices are covered" in the claim is functional language and is treated as nonlimiting since it has been held that in device claims, the device must be distinguished from the prior art in terms of structure rather than function. *In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997) The absence of a disclosure in a prior art reference relating to function did not defeat the Board's finding of anticipation of claimed apparatus because the limitations at issue were found to be inherent in the prior art reference. See MPEP 2114.

In re claims 9 and 11, Takeda et al discloses the first organosilicon polymer is one of the listed groups and the second organosilicon polymer is one of the listed groups, therefore the molecular weight of the first organosilicon polymer is lower than the molecular weight of the second organosilicon polymer (inherently) (Abstract; entire document).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 9 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beckley et al (US Patent 5,612,399) in view of Roberts et al (US PUB 2002/0004251) and Sorg (US PUB 2002/0057057).

In re claims 1-4, Beckley et al discloses a synthetic high-molecular compound having a three-dimensional steric structure which is formed by linking at least one first organosilicon polymers having a crosslinked structure using siloxane with at least one second organosilicon polymers having a linear linked structure using siloxane through siloxane bonds (column 3 – column 5; column 8).

Roberts et al discloses the use of a polymer as an encapsulation material in either a SiC semiconductor element or a GaN semiconductor element (paragraph 0098; paragraph 0127).

Sorg discloses the use of high-temperature resistant material as an encapsulation material in a wide band gap semiconductor device (paragraph 0008).

The advantage is to be able to use the semiconductor device in high temperature environments (paragraph 0008).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the compound as taught by Beckley et al with the use of a polymer as an encapsulation material in either a SiC semiconductor element or a GaN semiconductor element as taught by Roberts et al and the use of high-temperature resistant material as an encapsulation material in a wide band gap semiconductor device as taught by Sorg in order to use the semiconductor device in high temperature environments.

The recitation "with which a semiconductor element and at least part of electrical connecting means used for electrically connecting the semiconductor device to external devices are covered" in the claim is functional language and is treated as nonlimiting since it has been held that in device claims, the device must be distinguished from the prior art in terms of structure rather than function. *In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997) The absence of a disclosure in a prior art reference relating to function did not defeat the Board's finding of anticipation of claimed apparatus because the limitations at issue were found to be inherent in the prior art reference. See MPEP 2114.

In re claims 9 and 11-13, Beckley et al discloses the first organosilicon polymer is one of the listed groups and the second organosilicon polymer is one of the listed groups, therefore the molecular weight of the first organosilicon polymer is lower than the molecular weight of the second organosilicon polymer (inherently) (column 3 – column 5; column 8).

Claims 1-4, 9 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuck et al (US PUB 2002/0122946) in view of Roberts et al (US PUB 2002/0004251) and Sorg (US PUB 2002/0057057).

In re claims 1-4, Kuck et al discloses a synthetic high-molecular compound having a three-dimensional steric structure which is formed by linking at least one first organosilicon polymers having a crosslinked structure using siloxane with at least one second organosilicon polymers having a linear linked structure using siloxane through siloxane bonds (Figures 1-10; paragraph 0024 – paragraph 0058).

Roberts et al discloses the use of a polymer as an encapsulation material in either a SiC semiconductor element or a GaN semiconductor element (paragraph 0098; paragraph 0127).

Sorg discloses the use of high-temperature resistant material as an encapsulation material in a wide band gap semiconductor device (paragraph 0008).

The advantage is to be able to use the semiconductor device in high temperature environments (paragraph 0008).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the compound as taught by Kuck et al with the use of a polymer as an encapsulation material in either a SiC semiconductor element or a GaN semiconductor element as taught by Roberts et al and the use of high-temperature resistant material as an encapsulation material in a wide band gap

semiconductor device as taught by Sorg in order to use the semiconductor device in high temperature environments.

The recitation “with which a semiconductor element and at least part of electrical connecting means used for electrically connecting the semiconductor device to external devices are covered” in the claim is functional language and is treated as nonlimiting since it has been held that in device claims, the device must be distinguished from the prior art in terms of structure rather than function. *In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997) The absence of a disclosure in a prior art reference relating to function did not defeat the Board’s finding of anticipation of claimed apparatus because the limitations at issue were found to be inherent in the prior art reference. See MPEP 2114.

In re claims 9 and 11-13, Kuck et al discloses the first organosilicon polymer is one of the listed groups and the second organosilicon polymer is one of the listed groups, therefore the molecular weight of the first organosilicon polymer is lower than the molecular weight of the second organosilicon polymer (inherently) (Figures 1-10; paragraph 0024 – paragraph 0058).

Claims 3-4 and 12-13, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda et al (JP 57-131250) as applied to claim 1 above, and further in view of Roberts et al (US PUB 2002/0004251).

In re claims 3-4, Takeda et al discloses the first organosilicon polymer is one of the listed groups and the second organosilicon polymer is one of the listed groups (Abstract; entire document).

Roberts et al discloses the use of a polymer as an encapsulation material in either a SiC semiconductor element or a GaN semiconductor element (paragraph 0098; paragraph 0127).

The advantage is to protect the semiconductor device from radiation emitted from the device (paragraph 0127).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the compound as taught by Takeda et al with the use of a polymer as an encapsulation material in either a SiC semiconductor element or a GaN semiconductor element as taught by Roberts et al in order to to protect the semiconductor device from radiation emitted from the device.

In re claims 12-13, Takeda et al discloses the first organosilicon polymer is one of the listed groups and the second organosilicon polymer is one of the listed groups, therefore the molecular weight of the first organosilicon polymer is lower than the molecular weight of the second organosilicon polymer (inherently) (Abstract; entire document).



***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Yoshida et al (US Patent 5,668,205)
- b. Sumida et al (US Patent 4,652,618)
- c. Blizzard (US Patent 4,865,911)
- d. Katsoulis et al (US Patent 6,310,146)
- e. Shiomi et al (US Patent 6,660,084)
- f. Nakajima et al (JP 11-349897)
- g. Shim et al (US Patent 6,100,103)
- h. Brown et al (US Patent 5,394,005)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Ho whose telephone number is 571-270-1432. The examiner can normally be reached on M-Th: 8:30AM-7:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Parker can be reached on 571-272-2298. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AH  
December 17, 2007

  
JEROME JACKSON  
PRIMARY EXAMINER